

Table No. 1

FEED MATERIAL PROPERTIES DATA SHEET - BATCH 1.

CHEMICAL NAME	BENTONITE
MOLECULAR FORMULA	SAMPLE MARKED "BH#4"
MOISTURE CONTENT %	18.5
TRUE DENSITY g/cm ³	
BULK DENSITY (LOOSE) g/cm ³	1.11
BULK DENSITY (PACKED) g/cm ³	1.24
HARDINESS MOHS SCALE	
ANGLE OF REPOSE deg	NOT MEASURED
ANGLE OF FALL deg	
ANGLE OF DIFFERENCE deg	
OTHER	

MATERIAL RETAINED ON SIEVE				
MESH	MICRONS	MASS g	MASS FRACTION %	MASS ACCUMUL %
8	2380	7.4	2.7	2.7
18	1000	63.2	23.5	26.2
35	500	68.1	25.3	51.5
70	210	62.4	23.2	74.7
140	105	39.2	14.6	89.2
200	74	14.1	5.2	94.5
325	44	0.7	0.3	94.7
PAN	#N/A	14.2	5.3	100.0

Table No. 1 (Continued 2/4)

FEED MATERIAL PROPERTIES DATA SHEET - BATCH 2.

CHEMICAL NAME	BENTONITE
MOLECULAR FORMULA	SAMPLE MARKED "12 - 40"
MOISTURE CONTENT %	10.2
TRUE DENSITY g/cm ³	
BULK DENSITY (LOOSE) g/cm ³	1.09
BULK DENSITY (PACKED) g/cm ³	1.18
HARDINESS MOHS SCALE	
ANGLE OF REPOSE deg	NOT MEASURED
ANGLE OF FALL deg	
ANGLE OF DIFFERENCE deg	
OTHER	

MATERIAL RETAINED ON SIEVE				
MESH	MICRONS	MASS g	MASS FRACTION %	MASS ACCUMUL %
8	2380	5.2	1.7	1.7
18	1000	110.8	36.0	37.7
35	500	135.4	43.9	81.6
70	210	55.8	18.1	99.7
140	105	0.4	0.1	99.8
200	74	0.2	0.1	99.9
325	44	0	0.0	99.9
PAN	#N/A	0.3	0.1	100.0

Table No. 1 (Continued 3/4)

FEED MATERIAL PROPERTIES DATA SHEET - BATCH 3.

CHEMICAL NAME	BENTONITE
MOLECULAR FORMULA	SAMPLE MARKED "GRAN. FINES"
MOISTURE CONTENT %	9.1
TRUE DENSITY g/cm ³	
BULK DENSITY (LOOSE) g/cm ³	1.16
BULK DENSITY (PACKED) g/cm ³	1.28
HARDINESS MOHS SCALE	
ANGLE OF REPOSE deg	NOT MEASURED
ANGLE OF FALL deg	
ANGLE OF DIFFERENCE deg	
OTHER	

MATERIAL RETAINED ON SIEVE				
MESH	MICRONS	MASS g	MASS FRACTION %	MASS ACCUMUL %
8	2380	0.4	0.1	0.1
18	1000	1.5	0.5	0.6
35	500	3.8	1.2	1.7
70	210	151.0	45.8	47.6
140	105	84.5	25.6	73.2
200	74	26.3	8.0	81.2
325	44	27.1	8.2	89.4
PAN	#N/A	34.9	10.6	100.0

Table No. 1 (Continued 4/4)

FEED MATERIAL PROPERTIES DATA SHEET - BATCH 4.

CHEMICAL NAME	BENTONITE
MOLECULAR FORMULA	SAMPLE MARKED - LAST SHIPMENT
MOISTURE CONTENT %	20.2
TRUE DENSITY g/cm ³	
BULK DENSITY (LOOSE) g/cm ³	1.03
BULK DENSITY (PACKED) g/cm ³	1.16
HARDINESS MOHS SCALE	
ANGLE OF REPOSE deg	NOT MEASURED
ANGLE OF FALL deg	
ANGLE OF DIFFERENCE deg	
OTHER	

MATERIAL RETAINED ON SIEVE				
MESH	MICRONS	MASS g	MASS FRACTION %	MASS ACCUMUL %
8	2380	35.2	9.1	9.1
18	1000	48.5	12.5	21.7
35	500	82.3	21.3	42.9
70	210	159.1	41.2	84.1
140	105	33.9	8.8	92.9
200	74	24.5	6.3	99.2
325	44	0.9	0.2	99.5
PAN	#N/A	2.1	0.5	100.0

Table No. 2
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 1	RUN NO. 2
TESTED MATERIAL		BATCH 1	BATCH 1
FEED MATERIAL BULK DENSITY	g/cm ³	1.11	1.11
MACHINE MODEL		B-220QC	B-220QC
ROLLS PART NO.		B2487	B2487
ROLL DIAMETER	mm	305	305
NO. OF POCKETS (CORRUGATIONS)		24	24
NO. OF ROWS		1	1
ROLL FACE WIDTH	mm	76	76
ROLL SPEED	rev/min	3.0	3.0
ROLL TORQUE	Nm	3672	3815
ROLL DRIVE POWER INDEX	kW	1.16	1.20
FEED SCREW PART NO.			
FEED SCREW OUTSIDE DIA	mm	73	63
FEED SCREW ROOT DIA	mm	41	35
FEED SCREW PITCH	mm	51	51
SCREW BARREL INSIDE DIA	mm	76	76
FEEDSCREWSPEED	rev/min	31	58
SCREW TORQUE	Nm	284	158
FEED SCREW DRIVE POWER IND	kW	0.92	0.96
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.184	0.187
INITIAL ROLL GAP	mm	0.4	0.4
WEB THICKNESS	mm	0.7	0.9
BRIQUET CALCULATED PRESSURE	MPa	60.64	61.63
RATIO OF TANGENTIAL TO RADIAL STRESS		0.13	0.13
MEASURED THROUGHPUT	t/h	0.2642	0.2609
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	57.91	57.61
BRIQUET NET PRODUCTION RATE	t/h	0.2502	0.2489
FINES PERCENTAGE	%	5.3	4.6
FEED SCREW EFFICIENCY	%	87.6	61.5
ROLL DRIVE ENERGY CONS.	kWh/t	4.4	4.6
SCREW DRIVE ENERGY CONS.	kWh/t	3.5	3.7

Table No. 2 (Continued 2/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

	RUN NO. 3	RUN NO. 4
TESTED MATERIAL	BATCH 1	BATCH 1
FEED MATERIAL BULK DENSITY g/cm ³	1.11	1.11
MACHINE MODEL	B-220QC	B-220QC
ROLLS PART NO.	B2487	B2487
ROLL DIAMETER mm	305	305
NO. OF POCKETS (CORRUGATIONS)	24	24
NO. OF ROWS	1	1
ROLL FACE WIDTH mm	76	76
ROLL SPEED rev/min	3.0	3.0
ROLL TORQUE Nm	3037	2736
ROLL DRIVE POWER INDEX kW	0.96	0.86
FEED SCREW PART NO.		
FEED SCREW OUTSIDE DIA mm	63	63
FEED SCREW ROOT DIA mm	35	35
FEED SCREW PITCH mm	51	51
SCREW BARREL INSIDE DIA mm	76	76
FEEDSCREWSPEED rev/min	52	49
SCREW TORQUE Nm	123	115
FEED SCREW DRIVE POWER IND kW	0.67	0.59
PRESSURE IN HYDRAULIC SYS MPa		
INITIAL ACCUMULATOR PRESSURE MPa	6.89	6.89
ROLL SEPARATING FORCE MN	0.122	0.069
INITIAL ROLL GAP mm	0.4	0.4
WEB THICKNESS mm	1.2	2.3
BRIQUET CALCULATED PRESSURE MPa	40.21	22.74
RATIO OF TANGENTIAL TO RADIAL STRESS	0.16	0.26
MEASURED THROUGHPUT t/h	0.2731	0.2945
BRIQUET TEMPERATURE DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT g	59.48	63.51
BRIQUET NET PRODUCTION RATE t/h	0.2570	0.2744
FINES PERCENTAGE %	5.9	6.8
FEED SCREW EFFICIENCY %	71.7	82.1
ROLL DRIVE ENERGY CONS. kWh/t	3.5	2.9
SCREW DRIVE ENERGY CONS. kWh/t	2.5	2.0

Table No. 2 (Continued 3/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 5	RUN NO. 6
TESTED MATERIAL		BATCH 1	BATCH 2
FEED MATERIAL BULK DENSITY	g/cm ³	1.11	1.09
MACHINE MODEL		B-220QC	B-220QC
ROLLS PART NO.		B2487	B2487
ROLL DIAMETER	mm	305	305
NO. OF POCKETS (CORRUGATIONS)		24	24
NO. OF ROWS		1	1
ROLL FACE WIDTH	mm	76	76
ROLL SPEED	rev/min	14.7	12.4
ROLL TORQUE	Nm	2689	2915
ROLL DRIVE POWER INDEX	kW	4.15	3.80
FEED SCREW PART NO.			
FEED SCREW OUTSIDE DIA	mm	63	63
FEED SCREW ROOT DIA	mm	35	35
FEED SCREW PITCH	mm	51	51
SCREW BARREL INSIDE DIA	mm	76	76
FEEDSCREWSPEED	rev/min	391	391
SCREW TORQUE	Nm	78.5	45
FEED SCREW DRIVE POWER IND	kW	3.22	1.85
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.057	0.096
INITIAL ROLL GAP	mm	0.4	0.4
WEB THICKNESS	mm	2.9	3.1
BRIQUET CALCULATED PRESSURE	MPa	18.79	31.64
RATIO OF TANGENTIAL TO RADIAL STRESS		0.31	0.20
MEASURED THROUGHPUT	t/h	1.5382	1.3472
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	66.25	67.52
BRIQUET NET PRODUCTION RATE	t/h	1.4024	1.2056
FINES PERCENTAGE	%	8.8	10.5
FEED SCREW EFFICIENCY	%	53.7	47.2
ROLL DRIVE ENERGY CONS.	kWh/t	2.7	2.8
SCREW DRIVE ENERGY CONS.	kWh/t	2.1	1.4

Table No. 2 (Continued 4/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

	RUN NO. 7	RUN NO. 8
TESTED MATERIAL	BATCH 2	BATCH 2
FEED MATERIAL BULK DENSITY g/cm ³	1.09	1.09
MACHINE MODEL	B-220QC	B-220QC
ROLLS PART NO.	B2487	B2487
ROLL DIAMETER mm	305	305
NO. OF POCKETS (CORRUGATIONS)	24	24
NO. OF ROWS	1	1
ROLL FACE WIDTH mm	76	76
ROLL SPEED rev/min	3.0	3.0
ROLL TORQUE Nm	3029	3910
ROLL DRIVE POWER INDEX kW	0.95	1.23
FEED SCREW PART NO.		
FEED SCREW OUTSIDE DIA mm	63	63
FEED SCREW ROOT DIA mm	35	35
FEED SCREW PITCH mm	51	51
SCREW BARREL INSIDE DIA mm	76	76
FEEDSCREWSPEED rev/min	82	91
SCREW TORQUE Nm	43	53
FEED SCREW DRIVE POWER IND kW	0.37	0.51
PRESSURE IN HYDRAULIC SYS MPa		
INITIAL ACCUMULATOR PRESSURE MPa	6.89	6.89
ROLL SEPARATING FORCE MN	0.105	0.141
INITIAL ROLL GAP mm	0.4	0.4
WEB THICKNESS mm	2.6	2.1
BRIQUET CALCULATED PRESSURE MPa	34.60	46.47
RATIO OF TANGENTIAL TO RADIAL STRESS	0.19	0.18
MEASURED THROUGHPUT t/h	0.3127	0.3207
BRIQUET TEMPERATURE DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT g	66.45	69.65
BRIQUET NET PRODUCTION RATE t/h	0.2871	0.3009
FINES PERCENTAGE %	8.2	6.2
FEED SCREW EFFICIENCY %	53.1	49.0
ROLL DRIVE ENERGY CONS. kWh/t	3.1	3.8
SCREW DRIVE ENERGY CONS. kWh/t	1.2	1.6

Table No. 2 (Continued 5/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

	RUN NO. 9	RUN NO. 10
TESTED MATERIAL	BATCH 2	BATCH 3
FEED MATERIAL BULK DENSITY g/cm ³	1.09	1.16
MACHINE MODEL	B-220QC	B-220QC
ROLLS PART NO.	B2487	B2487
ROLL DIAMETER mm	305	305
NO. OF POCKETS (CORRUGATIONS)	24	24
NO. OF ROWS	1	1
ROLL FACE WIDTH mm	76	76
ROLL SPEED rev/min	3.0	3.0
ROLL TORQUE Nm	5036	5108
ROLL DRIVE POWER INDEX kW	1.59	1.61
FEED SCREW PART NO.		
FEED SCREW OUTSIDE DIA mm	63	63
FEED SCREW ROOT DIA mm	35	35
FEED SCREW PITCH mm	51	51
SCREW BARREL INSIDE DIA mm	76	76
FEEDSCREWSPEED rev/min	94	71
SCREW TORQUE Nm	72	129
FEED SCREW DRIVE POWER IND kW	0.71	0.96
PRESSURE IN HYDRAULIC SYS MPa		
INITIAL ACCUMULATOR PRESSURE MPa	6.89	6.89
ROLL SEPARATING FORCE MN	0.202	0.205
INITIAL ROLL GAP mm	0.4	0.4
WEB THICKNESS mm	2.0	2.1
BRIQUET CALCULATED PRESSURE MPa	66.57	67.56
RATIO OF TANGENTIAL TO RADIAL STRESS	0.16	0.16
MEASURED THROUGHPUT t/h	0.3253	0.3231
BRIQUET TEMPERATURE DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT g	70.51	69.82
BRIQUET NET PRODUCTION RATE t/h	0.3046	0.3016
FINES PERCENTAGE %	6.4	6.6
FEED SCREW EFFICIENCY %	48.1	59.5
ROLL DRIVE ENERGY CONS. kWh/t	4.9	5.0
SCREW DRIVE ENERGY CONS. kWh/t	2.2	3.0

Table No. 2 (Continued 6/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 11	RUN NO. 12
TESTED MATERIAL		BATCH 3	BATCH 3
FEED MATERIAL BULK DENSITY	g/cm ³	1.16	1.16
MACHINE MODEL		B-220QC	B-220QC
ROLLS PART NO.		B2487	B2487
ROLL DIAMETER	mm	305	305
NO. OF POCKETS (CORRUGATIONS)		24	24
NO. OF ROWS		1	1
ROLL FACE WIDTH	mm	76	76
ROLL SPEED	rev/min	3.0	3.0
ROLL TORQUE	Nm	3997	2982
ROLL DRIVE POWER INDEX	kW	1.26	0.94
FEED SCREW PART NO.			
FEED SCREW OUTSIDE DIA	mm	73	63
FEED SCREW ROOT DIA	mm	41	35
FEED SCREW PITCH	mm	51	51
SCREW BARREL INSIDE DIA	mm	76	76
FEEDSCREWSPEED	rev/min	69	82
SCREW TORQUE	Nm	93	43
FEED SCREW DRIVE POWER IND	kW	0.67	0.37
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.148	0.086
INITIAL ROLL GAP	mm	0.4	0.4
WEB THICKNESS	mm	2.2	3.1
BRIQUET CALCULATED PRESSURE	MPa	48.78	28.34
RATIO OF TANGENTIAL TO RADIAL STRESS		0.18	0.23
MEASURED THROUGHPUT	t/h	0.3061	0.3247
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	66.85	70.50
BRIQUET NET PRODUCTION RATE	t/h	0.2888	0.3046
FINES PERCENTAGE	%	5.7	6.2
FEED SCREW EFFICIENCY	%	50.1	51.8
ROLL DRIVE ENERGY CONS.	kWh/t	4.1	2.9
SCREW DRIVE ENERGY CONS.	kWh/t	2.2	1.1

Table No. 2 (Continued 7/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 13	RUN NO. 14
TESTED MATERIAL		BATCH 3	BATCH 4
FEED MATERIAL BULK DENSITY	g/cm ³	1.16	1.03
MACHINE MODEL		B-220QC	B-220QC
ROLLS PART NO.		B2487	B2487
ROLL DIAMETER	mm	305	305
NO. OF POCKETS (CORRUGATIONS)		24	24
NO. OF ROWS		1	1
ROLL FACE WIDTH	mm	76	76
ROLL SPEED	rev/min	16.4	3.0
ROLL TORQUE	Nm	4095	2895
ROLL DRIVE POWER INDEX	kW	7.05	0.91
FEED SCREW PART NO.			
FEED SCREW OUTSIDE DIA	mm	63	63
FEED SCREW ROOT DIA	mm	35	35
FEED SCREW PITCH	mm	51	51
SCREW BARREL INSIDE DIA	mm	76	76
FEEDSCREWSPEED	rev/min	391	67
SCREW TORQUE	Nm	67	228
FEED SCREW DRIVE POWER IND	kW	2.75	1.60
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.153	0.185
INITIAL ROLL GAP	mm	0.4	0.4
WEB THICKNESS	mm	2.4	0.7
BRIQUET CALCULATED PRESSURE	MPa	50.42	60.97
RATIO OF TANGENTIAL TO RADIAL STRESS		0.18	0.10
MEASURED THROUGHPUT	t/h	1.7124	0.2571
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	66.15	56.85
BRIQUET NET PRODUCTION RATE	t/h	1.5622	0.2456
FINES PERCENTAGE	%	8.8	4.5
FEED SCREW EFFICIENCY	%	57.2	56.5
ROLL DRIVE ENERGY CONS.	kWh/t	4.1	3.5
SCREW DRIVE ENERGY CONS.	kWh/t	1.6	6.2

Table No. 2 (Continued 8/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 15	RUN NO. 16
TESTED MATERIAL		BATCH 4	BATCH 4
FEED MATERIAL BULK DENSITY	g/cm ³	1.03	1.03
MACHINE MODEL		B-220QC	B-220QC
ROLLS PART NO.		B2487	B2487
ROLL DIAMETER	mm	305	305
NO. OF POCKETS (CORRUGATIONS)		24	24
NO. OF ROWS		1	1
ROLL FACE WIDTH	mm	76	76
ROLL SPEED	rev/min	3.0	3.0
ROLL TORQUE	Nm	2490	2162
ROLL DRIVE POWER INDEX	kW	0.78	0.68
FEED SCREW PART NO.			
FEED SCREW OUTSIDE DIA	mm	63	63
FEED SCREW ROOT DIA	mm	35	35
FEED SCREW PITCH	mm	51	51
SCREW BARREL INSIDE DIA	mm	76	76
FEEDSCREWSPEED	rev/min	66	66
SCREW TORQUE	Nm	148	76
FEED SCREW DRIVE POWER IND	kW	1.03	0.53
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.141	0.084
INITIAL ROLL GAP	mm	0.4	0.4
WEB THICKNESS	mm	0.7	0.8
BRIQUET CALCULATED PRESSURE	MPa	46.47	27.68
RATIO OF TANGENTIAL TO RADIAL STRESS		0.12	0.17
MEASURED THROUGHPUT	t/h	0.2592	0.2641
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	56.72	57.95
BRIQUET NET PRODUCTION RATE	t/h	0.2450	0.2503
FINES PERCENTAGE	%	5.5	5.2
FEED SCREW EFFICIENCY	%	57.8	58.9
ROLL DRIVE ENERGY CONS.	kWh/t	3.0	2.6
SCREW DRIVE ENERGY CONS.	kWh/t	4.0	2.0

Table No. 2 (Continued 9/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 17	RUN NO. 18
TESTED MATERIAL		BATCH 4	BATCH 4
FEED MATERIAL BULK DENSITY	g/cm ³	1.03	1.03
MACHINE MODEL		B-220QC	B-100R
ROLLS PART NO.		B2487	B1116-4
ROLL DIAMETER	mm	305	130
NO. OF POCKETS (CORRUGATIONS)		24	18
NO. OF ROWS		1	2
ROLL FACE WIDTH	mm	76	51
ROLL SPEED	rev/min	15.1	3.0
ROLL TORQUE	Nm	2308	520
ROLL DRIVE POWER INDEX	kW	3.66	0.16
FEED SCREW PART NO.			B180-9
FEED SCREW OUTSIDE DIA	mm	63	44
FEED SCREW ROOT DIA	mm	35	19
FEED SCREW PITCH	mm	51	40
SCREW BARREL INSIDE DIA	mm	76	51
FEEDSCREWSPEED	rev/min	391	57
SCREW TORQUE	Nm	65	79
FEED SCREW DRIVE POWER IND	kW	2.67	0.47
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.086	0.054
INITIAL ROLL GAP	mm	0.4	0.6
WEB THICKNESS	mm	0.9	0.7
BRIQUET CALCULATED PRESSURE	MPa	28.34	46.67
RATIO OF TANGENTIAL TO RADIAL STRESS		0.18	0.15
MEASURED THROUGHPUT	t/h	1.3247	0.0432
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	57.45	6.15
BRIQUET NET PRODUCTION RATE	t/h	1.2492	0.0399
FINES PERCENTAGE	%	5.7	7.7
FEED SCREW EFFICIENCY	%	49.9	24.8
ROLL DRIVE ENERGY CONS.	kWh/t	2.8	3.8
SCREW DRIVE ENERGY CONS.	kWh/t	2.0	10.9

Table No. 2 (Continued 10/10)
Roll Press Set Up, Test Conditions and Process
Characteristics

		RUN NO. 19	RUN NO. 20
TESTED MATERIAL		BATCH 1	BATCH 2
FEED MATERIAL BULK DENSITY	g/cm ³	1.11	1.09
MACHINE MODEL		B-400A	B-400A
ROLLS PART NO.		B4609	B4609
ROLL DIAMETER	mm	460	460
NO. OF POCKETS (CORRUGATIONS)		22	22
NO. OF ROWS		2	2
ROLL FACE WIDTH	mm	152	152
ROLL SPEED	rev/min	2.4	2.4
ROLL TORQUE	Nm	10800	18500
ROLL DRIVE POWER INDEX	kW	2.72	4.66
FEED SCREW PART NO.		B469	B469
FEED SCREW OUTSIDE DIA	mm	140	140
FEED SCREW ROOT DIA	mm	95	95
FEED SCREW PITCH	mm	76	76
SCREW BARREL INSIDE DIA	mm	148	148
FEEDSCREWSPEED	rev/min	48	73
SCREW TORQUE	Nm	420	285
FEED SCREW DRIVE POWER IND	kW	2.12	2.49
PRESSURE IN HYDRAULIC SYS	MPa		
INITIAL ACCUMULATOR PRESSURE	MPa	6.89	6.89
ROLL SEPARATING FORCE	MN	0.210	0.399
INITIAL ROLL GAP	mm	1.0	1.0
WEB THICKNESS	mm	1.2	3.3
BRIQUET CALCULATED PRESSURE	MPa	21.03	39.96
RATIO OF TANGENTIAL TO RADIAL STRESS		0.22	0.20
MEASURED THROUGHPUT	t/h	1.0215	1.1805
BRIQUET TEMPERATURE	DEG.C	NOT MEAS	NOT MEAS
BRIQUET WEIGHT	g	161.22	186.31
BRIQUET NET PRODUCTION RATE	t/h	1.0215	1.1805
FINES PERCENTAGE	%	NOT MEAS	NOT MEAS
FEED SCREW EFFICIENCY	%	50.6	39.2
ROLL DRIVE ENERGY CONS.	kWh/t	2.7	3.9
SCREW DRIVE ENERGY CONS.	kWh/t	2.1	1.8

Table 3
Product Evaluation

		RUN NO. 1	RUN NO. 2
BRIQUETWEIGHT	g	57.54	57.43
BRIQUETVOLUME	cm ³	27.27	27.22
BRIQUETDENSITY	g/cm ³	2.11	2.11
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1325.5	1227.6
DROP HEIGHT AT FAILURE	m	2.0	2.0
NUMBER OF DROPS		6	6

		RUN NO. 3	RUN NO. 4
BRIQUETWEIGHT	g	58.46	65.45
BRIQUETVOLUME	cm ³	27.84	31.32
BRIQUETDENSITY	g/cm ³	2.10	2.09
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1245.4	1316.6
DROP HEIGHT AT FAILURE	m	2.0	2.0
NUMBER OF DROPS		17	8

		RUN NO. 5	RUN NO. 6
BRIQUETWEIGHT	g	66.52	68.72
BRIQUETVOLUME	cm ³	31.98	32.72
BRIQUETDENSITY	g/cm ³	2.08	2.10
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1076.4	1797.1
DROP HEIGHT AT FAILURE	m	2.0	1.8
NUMBER OF DROPS		10	1

		RUN NO. 7	RUN NO. 8
BRIQUETWEIGHT	g	65.01	70.37
BRIQUETVOLUME	cm ³	30.81	32.28
BRIQUETDENSITY	g/cm ³	2.11	2.18
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1556.8	1859.3
DROP HEIGHT AT FAILURE	m	1.5	1.2
NUMBER OF DROPS		1	1

Table 3 (Continued 2/3)
Product Evaluation

		RUN NO. 9	RUN NO. 10
BRIQUETWEIGHT	g	70.52	70.29
BRIQUETVOLUME	cm ³	32.05	32.09
BRIQUETDENSITY	g/cm ³	2.20	2.19
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	2143.9	2215.1
DROP HEIGHT AT FAILURE	m	2.0	1.8
NUMBER OF DROPS		2	1

		RUN NO. 11	RUN NO. 12
BRIQUETWEIGHT	g	66.59	70.28
BRIQUETVOLUME	cm ³	30.83	33.31
BRIQUETDENSITY	g/cm ³	2.16	2.11
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	> 2224	1663.5
DROP HEIGHT AT FAILURE	m	2.0	1.2
NUMBER OF DROPS		2	1

		RUN NO. 13	RUN NO. 14
BRIQUETWEIGHT	g	66.02	55.48
BRIQUETVOLUME	cm ³	30.85	25.93
BRIQUETDENSITY	g/cm ³	2.14	2.14
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	2046.1	1192.0
DROP HEIGHT AT FAILURE	m	1.2	2.0
NUMBER OF DROPS		1	> 20

		RUN NO. 15	RUN NO. 16
BRIQUETWEIGHT	g	56.79	57.61
BRIQUETVOLUME	cm ³	26.41	26.92
BRIQUETDENSITY	g/cm ³	2.15	2.14
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1227.6	1120.9
DROP HEIGHT AT FAILURE	m	2.0	2.0
NUMBER OF DROPS		> 20	> 20

Table 3 (Continued 3/3)
Product Evaluation

		RUN NO. 17	RUN NO. 18
BRIQUETWEIGHT	g	57.66	6.14
BRIQUETVOLUME	cm ³	26.94	2.84
BRIQUETDENSITY	g/cm ³	2.14	2.16
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1014.2	427.1
DROP HEIGHT AT FAILURE	m	2.0	2.0
NUMBER OF DROPS		> 20	> 20

		RUN NO. 19	RUN NO. 20
BRIQUETWEIGHT	g	161.22	186.31
BRIQUETVOLUME	cm ³	NOT MEAS.	NOT MEAS.
BRIQUETDENSITY	g/cm ³	NOT MEAS.	NOT MEAS.
BRIQUETS BULK DENSITY	t/m ³	NOT MEAS.	NOT MEAS.
BRIQUETS "GREEN" STRENGTH			
MEAN CRUSHING FORCE	N	1147.6	1912.6
DROP HEIGHT AT FAILURE	m	2.0	1.5
NUMBER OF DROPS		6	1

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Table 4

MATERIAL: BENTONITE @0% MOISTURE

	<u>HYDRAULIC PRESSURE</u> (psi)	<u>ROLL CYCLES/ LOAD</u> (Hz/A)	<u>SCREW CYLCES/ LOAD Hz/A)</u>	<u>RESULTS</u>
<u>RUN 1</u>	700	60/21.19	10/20.07	Briquets appear crushed and brittle.
<u>RUN 2</u>	700	60/23.16	13/17.35	No great improvement in briquet quality.
<u>RUN 3</u>	600	58/23.05	11/20.13	Slightly stronger briquets, pressure sensitive.
<u>RUN 4</u>	700	58/23.35	11/19.89	Quality improved, but pressure sensitive.
<u>RUN 5</u>	850	58/?	13/?	Best looking briquets.
<u>RUN 6</u>	600	58/36.71	13/20.92	Good briquets, but with cracks.
<u>RUN 7</u>	500	58/33	11/?	Best briquets but high pressure fluctuations.
<u>RUN 8</u>	500	60/22.33	11/19.67	Moderate briquets.
<u>RUN 9</u>	400	58/23	11/19.9	About the same as RUN 8.

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Table 4 (Continued 2/5)

MATERIAL: BENTONITE @7% MOISTURE

	<u>HYDRAULIC PRESSURE</u> (psi)	<u>ROLL CYCLES/ LOAD</u> (Hz/A)	<u>SCREW CYLCES/ LOAD</u> (Hz/A)	<u>RESULTS</u>
<u>RUN</u> <u>1</u>	400	56/24	11/19.6	Good briquets, but not well-filled. Surface had cracks.
<u>RUN</u> <u>2</u>	300	56/24.9	11/21.5	Briquets same as RUN 1, but had fewer surface cracks.
<u>RUN 3</u>	300	56/21.8	10/20.7	Briquets were weaker and not well-filled. More lines generated.
<u>RUN 4</u>	300	54/27.0	11/20.1	Quality improved, briquet was much fuller and strong.
<u>RUN 5</u>	300	52/20.4	17.1	Best looking briquets. Green strength very high, a bit more flashing, but break off easily in tumbler.
NOTE: Hydraulic pressure fluctuates 300-600psi indicated depending on material flow from bucket elevator.				

Table 4 (Continued 3/5)

MATERIAL: BENTONITE @14% MOISTURE

	<u>HYDRAULIC PRESSURE</u> (psi)	<u>ROLL CYCLES/ LOAD</u> (Hz/A)	<u>SCREW CYLCES/ LOAD</u> (Hz/A)	<u>RESULTS</u>
<u>RUN 6</u>	300	52/21.86	11/19.03	Thicker, stickier material results in better quality briquet: well-filled and high in green strength. There are surface cracks.
<u>RUN 7</u>	300	58/21.5	11/20.6	Briquets are crumbly and weak, very few are well-formed. Rough edges on most briquets.
<u>RUN 8</u>	300	58/24.4	13/19.3	Better briquet than previous runs, some surface cracks, but less than before.
<u>RUN 9</u>	300	58/25.1	13/20.3	Run with belt slippage in mind. Longer run produced briquets like RUN 8 but a bit more splitting and/or minimal clamshelling.
<u>RUN 10</u>	300	58/?	15/?	Run to see max feed screw speed. Belts slipped, motor tripped.
<u>RUN 11</u>	200	58/?	14/?	Same objective and results as RUN 10, with less pressure to reduce load.
<u>RUN 12</u>	200	54/?	13/?	Same results as RUN 11, this run was made with roll and screw speed decreased for reduced loading (pressure also reduced).

Table 4 (Continued 4/5)

MATERIAL: BENTONITE @14% MOISTURE

	<u>HYDRAULIC PRESSURE</u> (psi)	<u>ROLL CYCLES/ LOAD</u> (Hz/A)	<u>SCREW CYLCES/ LOAD</u> (Hz/A)	<u>RESULTS</u>
<u>RUN 13</u>	200	45/20.9	6/20.0	Objective was to determine minimum speeds and pressures. Fines were generated, not briquets.
<u>RUN 14</u>	200	58/29.6	13/20.11	Briquets were full, but feeder motor trips after short run.
<u>RUN 15</u>	400	58/31.3	13/18.7	Belts slipped immediately, feed motor tripped.
<u>RUN 16</u>	300	58/24.1	12/21.4	Good briquets, but with some surface cracks and flash. Green strength was high.
<u>RUN 17</u>	250	58/30.3	58/21.0	Very good briquet with some flash, no cracks. Full briquet with high green strength.
<u>RUN 18</u>	250	60/?	15/?	Immediate belt slippage and trip
<u>RUN 19</u>	250	58/23	11/20.0	Most full briquet of all previous runs, but edges not clean. No cracks, no splitting, high strength.

Table 4 (Continued 5/5)

MATERIAL: BENTONITE @14% MOISTURE

	<u>HYDRAULIC PRESSURE</u> (psi)	<u>ROLL CYCLES/ LOAD</u> (Hz/A)	<u>SCREW CYLCES/ LOAD</u> (Hz/A)	<u>RESULTS</u>
<u>RUN 20</u>	250	56/22.3	11/21.6	About the same as RUN 19, but run at a slower capacity.
<u>RUN 21</u>	300	58/26.3	13/19.3	Briquets are satisfactory, but highly sensitive to hydraulic pressure. Higher tendency to show splitting.
<u>RUN 22</u>	250	58/22.1	12/21.4	Best briquet of all previous trials, but still slightly sensitive to hydraulic pressure, though not problematic. No cracks on surface, consistent quality, high strength.
<u>RUN 23</u>	250	60/22.4	13/19	Best briquet for highest capacity. No cracks or splitting. Consistently good quality and high strength.

TABLE 3
COALINGA PILOT ABANDONMENT RESULTS

Well	Well Type	Case	TD	Top Perf	Initial Fluid L.	Top Bot. Plug	"A" Pt Fluid L
60-11A	Producer	1	2,680	2,360	1,297	2,240	NA
2-8-11A	Producer	1	1,660	1,449	-	1,196	NA
3-7-11A	Producer	1	1,880	1,166	482	1,465	NA
146-11A	Producer	1	1,800	1,604	1,400	1,462	NA
45-11A	Producer	1	1,600	1,503	1,460	1,407	NA
243-11A	Producer	1	1,800	1,617	1,455	1,487	NA
138-11A	Producer	1	1,622	1,432	1,270	1,281	NA
Amity 9-3-1D	Cyclic	1	973	447	355	342	NA
8-4A-1D	Cyclic	1	605	162	50	1	NA
2-8-25D	Cyclic	1	1,130	885	720	529	NA
2-7-25D	Cyclic	1	1,150	1,006	720	810	NA
2-9-7C	Cyclic	2	1,820	1,500	1,320	1,372	1,091
1-7-19C	Cyclic	2	1,900	1,642	-	1,554	1,303
4-8-7C	Producer	2	1,800	1,673	700	1,573	1,237
4-7-7C	Producer	2	1,810	1,681	280	1,558	1,147
4-7-17C	Water Inj	3	3,405	3,278	380	3,141	2,322
3-6-17C	Water Inj	3	3,270	3,152	350	2,985	2,316
Arica 6-6-7C	Producer	3	2,095	1,984	-	1,850	1,468
Arica 5-6-7C	Producer	3	1,965	1,842	480	1,763	1,382

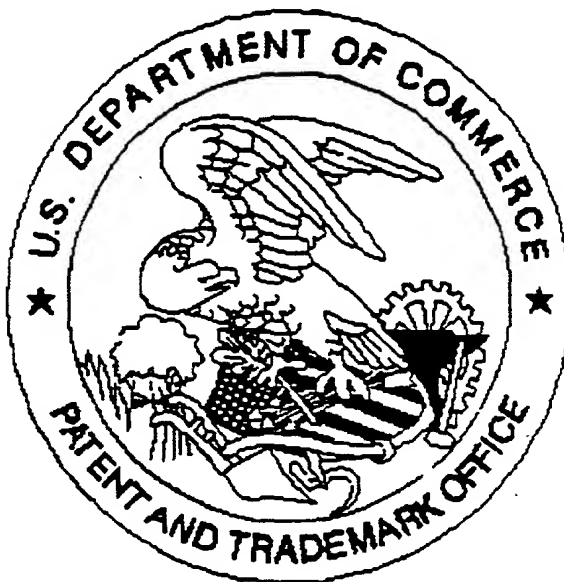
Note: All depths in feet from ground level

TABLE 3 (Continued)
COALINGA PILOT ABANDONMENT RESULTS

Well	Top "A" Pt Plug	Fresh Water Fluid L.	T/Fresh Water Plug	Surf. Fluid L.	Top Surf. Plug	Aban. Time (hrs)	Doggr Approval
60-11A	NA	NA	NA	480	10	12.5	Yes
2-8-11A	NA	NA	NA	504	9	15.5	Yes
3-7-11A	NA	NA	NA	-	10	7	Yes
146-11A	NA	NA	NA	-	8	11	Yes
45-11A	NA	NA	NA	355	11	6.5	Yes
243-11A	NA	NA	NA	at surf	3	6	Yes
138-11A	NA	NA	NA	-	8	4.5	Yes
Amity 9- 3-1D	NA	NA	NA	at surf	11	4.5	Yes
8-4A-1D	NA	NA	NA	at surf	NA	4	Yes
2-8-25D	NA	NA	NA	at surf	9	7	Yes
2-7-25D	NA	NA	NA	at surf	1	5	Yes
2-9-7C	1,091	at surf	232	at surf	9	6.5	Yes
1-7-19C	1,303	at surf	352	at surf	11	7	Yes
4-8-7C	1,237	at surf	399	at surf	10	7	Yes
4-7-7C	1,147	at surf	355	-	10	19.5	Yes
4-7-17C	2,322	98	1,041	-	1	27.5	Yes
3-6-17C	2,316	at surf	1,117	at surf	13	7.5	Yes
Arica 6- 6-7C	1,468	106	507	at surf	8	10	Yes
Arica 5- 6-7C	1,382	at surf	567	-	8	28	Yes

Note: All depths in feet from ground level

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